

**Bonneville Power Administration
Fish and Wildlife Program FY99 Proposal**

Section 1. General administrative information

Protect And Enhance Fish Habitat In Grande Ronde Basin Streams

Bonneville project number, if an ongoing project 8402500

Business name of agency, institution or organization requesting funding
OREGON DEPARTMENT OF FISH AND WILDLIFE

Business acronym (if appropriate) ODFW

Proposal contact person or principal investigator:

Name Vance R. McGowan
Mailing Address 107 20th Street
City, ST Zip La Grande, OR 97850
Phone (541) 963-2138
Fax (541) 963-6670
Email address zakewalt@oregontrail.net OR wertzt@oregontrail.net

Subcontractors.

Organization	Mailing Address	City, ST Zip	Contact Name
Various equipment & fence contractors	no specific address		Competitive bid process
Union & Wallowa County Weed Control Agencies		La Grande & Enterprise	Gary Dade, Ted Daggett

NPPC Program Measure Number(s) which this project addresses.
NPPC Columbia Basin Fish & Wildlife Program Measures 7.6, 7.7, 7.8, 7.10

NMFS Biological Opinion Number(s) which this project addresses.
N/A

Other planning document references.

“Integrated System Plan for Salmon and Steelhead Production in the Columbia River Basin”, CBFWA, 1990. * “Grande Ronde River Basin: Recommended Salmon and Steelhead Habitat Improvement Measures”, CTUIR, 1984. * “Grande Ronde River Basin Fish Habitat Improvement Implementation Plan”, ODFW, 1988. * “UGR River Anadromous Fish Habitat Protection, Restoration, and Monitoring Plan”, USFS, PNFRES, ODFW, CRITFC, CTUIR, NPT, OSU, 1992. * “CTUIR - Columbia Basin Salmon Policy”, pgs 9-10, 1995. * “NMFS-Snake River Salmon Recovery Plan” (8/97 draft), Chap.4, pg. 61, 1997. * “Stream and Riparian Conditions in the Grande Ronde Basin: A Report to the Grande Ronde Model Watershed Board”, Clearwater Biostudies, 1993. * “Application of the EDT Method to the Grande Ronde Model Watershed Project”, Mobrand Biometrics, 1997. * “Upper Grande Ronde Conservation Strategy for Endangered Snake River Spring Chinook”, Environmental Assessment, USDA FS, Wallowa-Whitman NF, 1994.

Subbasin.

Upper and Middle Grande Ronde River subbasins, Catherine Creek subbasin, Wallowa River subbasin, Joseph Creek subbasin

Short description.

Protect and enhance fish habitat in selected streams on private lands in the Grande Ronde Basin to improve instream and riparian habitat diversity, and increase natural production of wild salmonids.

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
X	Anadromous fish	+	Construction	X	Watershed
+	Resident fish	X	O & M		Biodiversity/genetics
+	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research	+	Ecosystems
	Climate	+	Monitoring/eval.		Flow/survival
+	Other	+	Resource mgmt		Fish disease
		+	Planning/admin.		Supplementation
			Enforcement	+	Wildlife habitat en-
		+	Acquisitions		hancement/restoration

Other keywords.

Riparian Protection, Passive Restoration, Proper Functioning Condition, Fish Habitat Enhancement, Fish Passage Improvement, Private Landowner Cooperation, Watershed Health, Public Outreach

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship
8402100	Mainstem, Middle Fork & North Fork John Day River--ODFW	Shares funding and personnel to implement and maintain projects in the Camas Creek subbasin.
9608300	Grande Ronde Subbasin Watershed Restoration--CTUIR	Shares funding & personnel to implement and maintain the McCoy Meadows Restoration Project.
9402700	Grande Ronde Model Watershed Projects --GRMWP	Partially funded the ODFW Grande Ronde River, Beaver & Hurricane Ck. projects, reviews new projects.

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Implementation--Prework: Analyze existing information and prioritize potential projects; procure long term lease agreements on private lands; and develop plans and obtain permits to implement new fish habitat projects.	a	Analyze existing information available from: watershed assessments listed in Section 1; from local district fisheries biologists; the Grande Ronde Model Watershed and others. Prioritize potential new projects.
1		b	Work cooperatively with private landowners to procure long term riparian lease agreements in high priority areas.
1		c	Conduct planning activities (surveying, staking, mapping), prepare contracts, and obtain permits needed to complete work.
2	Implementation--Onsite: Contribute to improving watershed conditions by improving the quality and quantity of riparian and instream habitat on selected streams.	a	Construct livestock exclosure fences on streams impacted by grazing, and remove any barriers to fish migration.
2		b	Construct off-site spring developments to encourage

			livestock utilization of uplands and divert grazing pressure away from streams.
2		c	Construct site-specific instream structures if needed, using native materials and bioengineering or other “soft” techniques.
3	Insure maximum program benefits within leased areas by providing maintenance on all existing riparian exclosure fences, plantings and instream structures.	a	Inspect and maintain 96.1 miles of riparian fence which currently protects 54.7 miles of stream and 1260 acres of riparian habitat. This includes 134 livestock watering gaps and 24 off-site spring developments.
3		b	Inspect all leased areas for revegetation success. Plant native trees and shrubs (such as willow & cottonwood cuttings, conifers) where needed to reduce bank erosion, and to restore degraded overstory & understory components of riparian plant communities.
3		c	Inspect all leased areas for noxious weeds and work with county weed agencies to control listed species.
3		d	Inspect streambank stability and instream structures in 54.7 miles of stream and perform necessary maintenance on a case by case basis. Cost share these activities at 3:1 using FEMA funds when available or applicable.
3		e	Coordinate O&M activities with landowners to insure project goals and landowner needs are both met, and with minimal disturbance to landowner operations.
4	Monitor and evaluate Grande Ronde Basin fish habitat enhancement projects and report the results of these activities.	a	Annually retake 206 photopoint pictures established on 27 individual projects.
4		b	Continue year around monitoring of hourly stream temperatures at ten project monitoring sites on 5

			streams. Annually summarize and analyze the results of data collected from ten permanent thermographs.
4		c	Retake 70 riparian habitat transects on McCoy and Elk creeks to assess stream channel responses to habitat restoration.
4		d	Conduct biological surveys (spawning ground counts, fish population estimates, bird nesting, etc.) on selected streams.
4		e	Report the results of all project M&E activities in quarterly, annual and special reports. Distribute to ODFW fish districts, BPA, & other interested parties.
5	Insure maximum communication, education and coordination of habitat enhancement activities by actively pursuing opportunities to work with, educate and learn from personnel involved with other agencies, organizations, and programs.	a	Work cooperatively with the Grande Ronde Model Watershed Program and other local watershed councils to identify and prioritize projects and activities beneficial to the protection and restoration of riparian areas and watersheds on private lands.
5		b	Coordinate field activities with other agencies, organizations, and programs to insure maximum technology transfer, program consistency and coordination of habitat enhancement efforts.
5		c	Answer correspondence, respond to information needs, and make presentations to other agencies, private organizations, school/youth groups and the news media.
5		d	Work cooperatively with private landowners to promote management activities that protect and restore instream and riparian habitat and watersheds on private lands. Update individual landowners on the progress of these projects.

6	Conduct administrative activities necessary to insure maximum program benefits in a cost effective manner.	a	Coordinate project activities with ODFW fiscal, realty, regional and district staff; with the BPA contracting officer and NPPC staff to insure that program operations are consistent with ODFW and BPA policies.
6		b	Maintain habitat program databases, records and files.
6		c	Hire, train and supervise activities of project technicians.
6		d	Prepare annual work statements and budgets; write quarterly, annual and other reports; write and administer contracts; and purchase necessary equipment, materials and supplies.
6		e	Pursue cost share opportunities with other programs and agencies (model watershed, GWEB, ODFW Fish Restoration & Enhancement, FEMA, etc.) and private landowners. Track and administer additional funding.

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	3/1999	3/2000	5.00%
2	3/1999	3/2000	10.00%
3	3/1999	3/2000	60.00%
4	3/1999	3/2000	10.00%
5	3/1999	3/2000	5.00%
6	3/1999	3/2000	10.00%
			TOTAL 100.00%

Schedule constraints.

1) Catastrophic natural events (floods, wind storms, etc); 2) Change of landownership or land use laws; 3) Compliance with state & federal environmental laws (COE, ODEQ, ODSL); 4) Timeliness of procuring funds.

Completion date.
2015

Section 5. Budget

FY99 budget by line item

Item	Note	FY99
Personnel	FY1999 budget; 2- FTE's, 2-3 Temps; approx. 10%= planning/coord., 13% =new implem. & 77% =O&M .	\$109,771
Fringe benefits	OPE @ 38%, allocated as above	\$41,713
Supplies, materials, non-expendable property	For new implementation only	\$7,500
Operations & maintenance	Materials, vehicles, mileage, office supplies, tools & equipment	\$28,760
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	replace post driver, upgrade computer and programs	\$5,000
PIT tags	# of tags: 0	\$ 0
Travel	Frequent overnight trips from La Grande to Enterprise	\$5,600
Indirect costs	Admin. overhead @ 22.9%, excluding capitol items >\$5,000 & contractual.	\$45,420
Subcontracts	Fence or instream structure maintenance, weed control	\$19,500
Other	Replace \$ originally allocated to New Implementation but used for O&M in 1998 on FEMA /flood repairs	\$17,000
TOTAL		\$280,264

Outyear costs

Outyear costs	FY2000	FY01	FY02	FY03
Total budget	\$295,000	\$310,000	\$325,000	\$340,000
O&M as % of total	77.00%	77.00%	77.00%	77.00%

Section 6. Abstract

ABSTRACT

The primary goal of the "*Grande Ronde Basin Fish Habitat Enhancement Project*" is to protect, enhance, and restore riparian and instream habitat for anadromous salmonids, thereby maximizing opportunities for natural fish production. This project provides for

implementation of Program Measures 7.6, 7.7, 7.8 and 7.10 of the Columbia River Basin Fish and Wildlife Program. These measures call for coordinated efforts to protect and improve spawning and rearing habitat, improve fish passage, and provide offsite mitigation for mainstem fishery losses caused by the Columbia River hydroelectric system. Accomplishing this goal will partially mitigate these losses.

Initiated by the Oregon Department of Fish and Wildlife in 1984, this project protects habitat on private lands in selected tributaries, through long term lease agreements. This project calls for passive regeneration of habitat, using riparian enclosure fencing as the primary method to restore streams to a normative condition. Active remediation using plantings, off-site water developments, and site-specific instream structures are also utilized where applicable.

Individual projects contribute to ecosystem and basin-wide watershed restoration efforts that are underway by state, federal and tribal agencies, the Grande Ronde Model Watershed Program and local watershed groups. While the focus of this project is on endangered Snake River spring/summer chinook and threatened summer steelhead, resident fishes and many species of wildlife also benefit. Long term maintenance is an ongoing and vital element of this program, and a monitoring program has been in place that includes: stream temperatures, habitat transects, physical and biological surveys, and photopoints.

Section 7. Project description

a. Technical and/or scientific background.

Section 7a. Technical and/or Scientific Background:

The Grande Ronde Basin is a major drainage located in the northeast corner of Oregon. Originating in the Blue Mountains, the Grande Ronde River flows north to the Snake River. Approximately 45% of the land is under federal ownership. Historic land uses include timber harvest, grazing, agriculture and recreation.

It is widely recognized that wild and naturally spawning populations of salmon and steelhead are at low levels throughout the Columbia River Basin as a result of impaired fish mainstem passage, blocked habitat, habitat degradation, fishing, predation and other factors. The intent of this project is to provide offsite mitigation for mainstem losses of habitat and fish productivity caused by the construction and operation of eight dams on the Columbia River, and is to be achieved through coordinated efforts to protect and improve spawning and rearing habitat, and improve fish passage (NPPC, 1994). The negative influences of logging, grazing, dams, irrigation withdrawals, urbanization, exotic species introductions and other human activities have been documented in all of the Columbia River tributaries (ISG, 1996). With the exception of roadless or wilderness areas, habitat degradation within the Grande Ronde Basin has been widespread

(Anderson et al., 1992; CTUIR, 1983; Henjum et al., 1994; McIntosh et al., 1994; Wissmar et al., 1994).

The eventual ESA listings of Snake River sockeye in 1991 and spring/summer chinook in 1992 led to increased efforts to implement ecosystem based or “ridge top to ridge top” approaches to species recovery within individual subbasins (Anderson and others, 1992; Huntington, 1993; Moberg and Lestelle, 1997; NMFS, 1997; Wallowa Co.-Nez Perce, 1993), and the Grande Ronde was designated as a “model watershed” in early 1990’s. The “**Grande Ronde Basin Fish Habitat Enhancement Project**” is a logical and integral part of the species recovery process by implementing projects that establish long term riparian and instream habitat protection, and tributary passage improvement on private lands through riparian lease agreements. Planning for implementation of these projects includes the participation and involvement of private landowners, state and federal agencies, tribes, model watersheds, and watershed councils. Individual projects contribute to ecosystem and basin-wide watershed restoration and management efforts that are underway by these groups. Emphasis is placed on restoring natural re-development of habitat diversity, the importance of channel to floodplain connectivity and seasonal flooding in creating and maintaining habitat, and eliminating the sources of habitat degradation (ISG, 1996).

Timber harvest and cattle grazing are common land management practices in the basin. Logging and associated road building in riparian and floodplain forests eliminates sources of large wood, reduces shade and bank stability, and increases erosion (Maser, 1988; Meehan, 1991). Overgrazing by domestic livestock can change riparian and stream channel characteristics to the detriment of salmonids (Bauer and Burton, 1993; Kaufman and Krueger, 1984; Platts, 1990; Lichatowich and Moberg, 1995; Wissmar et al., 1994). Passive regeneration techniques using riparian exclosure fencing is the primary method used to restore degraded habitat, and has proven to be an effective means of improving riverine/riparian habitats along grazed streams (Beschta et al., 1991; Chaney et al., 1993; Platts, 1990; NMFS, 1997). Active remediation techniques using plantings (Chaney et al., 1993; ISG, 1996), bioengineered, or other instream structures may also improve habitat, and may be required when natural processes are dysfunctional or unlikely to result in recovery within a desired time frame (NMFS, 1997). This project has utilized these techniques and applied adaptive management on 27 individual projects in the Grande Ronde basin since 1984.

b. Proposal objectives.

Section 7.b. Proposal Objectives: The overall program goal is to increase natural production of wild anadromous salmonids by removing the causes of habitat degradation. Expected benefits are reduced sediment loading, improved water quality and quantity, and improved riparian habitat and instream habitat diversity on selected streams. This project will maintain long term program investments, and continue to work with private landowners on new projects in high priority streams.

Objective 1-- Implementation--Pework: Analyze existing information and prioritize

potential projects; procure long term lease agreements on private lands; and develop plans and obtain permits to implement new fish habitat projects.

Objective 2-- Implementation--Onsite: Contribute to improving watershed conditions by improving the quality and quantity of riparian and instream habitat on selected streams.

Objective 3--Insure maximum program benefits within leased areas by providing maintenance on all existing riparian enclosure fences, plantings and instream structures.

Objective 4-- Monitor and evaluate Grande Ronde Basin fish habitat enhancement activities and prepare reports of the results.

Objective 5-- Insure maximum communication, education and coordination of habitat enhancement activities by actively pursuing opportunities to work with, educate and learn from personnel involved with other agencies, organizations, and programs.

Objective 6-- Conduct administrative activities necessary to insure maximum program benefits in a cost effective manner.

c. Rationale and significance to Regional Programs.

Section 7c. Rational & significance to Regional Programs:

Habitat degradation, caused by overgrazing, road construction, timber harvest and other management activities has adversely affected instream and riparian areas and their effective hydrologic function. Low summer stream flows, high summer water temperatures, poor bank stability, winter icing, sedimentation, and a lack of instream and riparian habitat diversity has occurred, affecting salmonids throughout much of the Grande Ronde basin. Degraded stream habitat conditions were identified in 273 miles of streams on private lands within the Upper Grande Ronde, Joseph Creek and Wallowa subbasins (CTUIR, 1983). In the Upper Grande Ronde subbasin alone 80% of the anadromous fish habitat was considered to be in degraded condition (Anderson et al., 1992), and about 70% of large pool habitat lost since 1941 (McIntosh et al., 1994). After fourteen years of intensive efforts by this project a total of 54.7 miles of stream have been treated, leaving much work to be done. With continued funding we anticipate protecting and enhancing an average of 5 miles of stream/year in 1999 and beyond, and providing continued protection , maintenance and monitoring of existing projects.

Planning for project implementation is coordinated on a comprehensive watershed basis that includes the participation and involvement of private landowners, state and federal agencies, tribes, the Grande Ronde Model Watershed and watershed councils as called for in Program Measures 7.6, 7.7 of the 1994 Fish & Wildlife Program. Individual projects implement state habitat improvements using: “best management practices” as called for in Program Measure 7.8B; riparian easements with private landowners as specified in Program Measure 7.8E; and provide fish passage to blocked habitat called for in Program

Measure 7.10. These projects contribute to the Northwest Power Planning Council's interim goal of doubling anadromous fish runs in the Columbia River Basin by providing offsite mitigation for mainstem fisheries losses caused by the eight dams along the Columbia River hydroelectric system.

d. Project history

Section 7d. Project History:

The Grande Ronde Habitat Enhancement Project (8402500) was initiated in 1984 and is comprised of numerous smaller projects throughout the Grande Ronde Basin. Individual projects are all on private lands, and have been implemented only in cases where long term riparian lease or cooperative agreements could be signed with landowners. The Oregon Department of Fish and Wildlife became the primary agency for implementing these projects on private lands because of its local fisheries expertise, its successful dealings with landowners in the basin, and its ability to provide long term maintenance and monitoring. Individual projects were originally selected and prioritized based on the "Summary Report: Salmon and Steelhead Habitat Improvement Initiatives" by the Confederated Tribes and other agencies, which identified 273 miles of degraded habitat (CTUIR, 1983). In 1996 potential new project areas, by subbasin, were re-prioritized based on several factors, including: 1) review of work completed in the basin; 2) review of more recent watershed assessments such as those produced through funding from the Grande Ronde Model Watershed Program (Huntington, 1993) or local watershed groups (Wallowa County-Nez Perce Tribe, 1993); 3) input from local district fisheries biologists.

Past Costs: This project has been in existence since 1984 (14 years). Project budgets have averaged \$270,607 and ranged from a high of \$474,000 in 1992, to a low of \$160,000 in 1996 -- the only year in which no new implementation occurred. Prior to 1994 the program was 100% funded by BPA. Since then, this project has supplemented regular program funds with about \$320,000 of outside funds (Governor's Watershed Enhancement Board, Grande Ronde Model Watershed, Federal Emergency Management Act, and ODFW Fish Restoration & Enhancement funds). Beginning in 1996 and beyond our BPA contracts have provided for cost shares with private landowners on lower priority streams, whereby the landowners provide the construction and long term maintenance of these projects. In 1997 FEMA awarded this project \$148,000 to repair damages to projects from the January 1997 flood event. However, FEMA requires a cost share of 25%, thus, much of the funding dedicated to new implementation in 1997 went to O&M for flood repairs to cover the 3:1 match. Additional funds, therefore, were requested in FY1998 and FY1999 to cover the completion of repairs in 1998 (See Section 5, line item budget).

Major Results Achieved: Project achievements to date include signed lease agreements with 23 different landowners, which protects 51.9 miles of streams and 1260 acres of riparian habitat in the Grande Ronde subbasin. An additional 2.8 miles of stream and 16

acres are protected in the Camas Creek drainage, and is coordinated with the John Day Basin Fish Habitat Enhancement Project (Project No. 8402100). Ninety-two miles of riparian fence have been constructed and maintained, along with 127 livestock water gaps, and 24 off-site water developments that encourage utilization of upland forage by cattle and reduce stream habitat degradation. Natural reestablishment of riparian vegetation and improved connectivity of the channel to the floodplain has occurred in all of these projects.

Approximately 2,100 site-specific instream habitat or fish passage improvement structures have been installed to address factors limiting salmonid production (lack of pools or woody debris, sedimentation) and 48,000 riparian trees and shrubs planted in severely degraded areas, or used in bioengineered structures where recovery of native vegetation has not occurred at an acceptable rate. Regular maintenance, monitoring and evaluation are conducted as part of this program (see Section 7e. below).

The Grande Ronde Habitat Enhancement project has benefited wild Snake River spring/summer chinook and summer steelhead, bulltrout and other resident fishes and wildlife by providing increased habitat diversity, streamside shading, instream cover, and canopy. Since initiation of the project, floodplain function and channel morphology and complexity have improved. Bank erosion and sedimentation have been significantly reduced. In a field review of BPA projects Beschta et al. (1991) stated that "Corridor fencing resulted in the most successful examples observed of vegetation recovery, diversity of channel morphology, and improved fish and wildlife habitat." Monitoring that has been accomplished so far has documented these and other improvements. Examples include: 1) an increase in Rb/St composition in McCoy Creek from 5.5% in 1988 to 21.6% in 1997 (McGowan, 1997); 2) increased streamside shade (a 10% increase on Elk Creek in transect study areas between 1988-94); 3) reduced or stabilized stream temperatures (mean summer temperatures are 1.5 degrees C cooler at the downstream end of the project on Salmon Creek); 4) narrowing and deepening of stream channel, improved bank stability, and increased diversity of riparian vegetation and channel complexity (unpublished riparian habitat transect data, and project photopoints).

Adaptive Management Implications: From the onset of this program we have worked under the assumption that enhancing instream and riparian habitat conditions will result in improved water quality and quantity, and lead to an increase in carrying capacity of salmonids within the basin. A few examples of knowledge gained over the years that influence our approach to stream restoration are:

- Upon initiation of the project in 1984 a variety of riparian enhancement strategies were considered. These included less restrictive lease terms, intensive pasture management, or intensive planting and/or use of instream structures alone. These techniques have been used by others but are often ineffective, or take much longer to produce recovery. Some agencies such as the Army Corps and NRCS typically require no monitoring of projects they fund or permit (NMFS, 1997). Based on our experience over the last fourteen years it seems clear that on Eastern Oregon streams riparian corridor fences, along with some limited planting or instream work will achieve the quickest recovery. The FWP calls for recovery of streams within 5 years,

if possible (NPPC, 1994). In many cases this strategy fits best with the management most commonly used by cattle operators (Chaney et al., 1992). Since the listed or proposed stocks have reached critically low populations, using the most rapid method of recovery with a moderate level of maintenance and monitoring is essential.

- Our experience has also shown that different streams have different rates of recovery; many factors such as stream order, location of the stream, climate, condition of the upper watershed, and past management influence how quickly streams respond. For example, high elevation sites typically require much longer recovery periods than lower elevation areas because of extreme climate changes and shorter growing seasons. There are no quick fixes to stream recovery.
- The use of active remediation techniques such as planting or use of instream structures alone at improving habitat is variable. In planning habitat improvement projects we have focused primarily on achieving proper floodplain function and establishing natural succession of riparian plant communities. Plantings and instream structures are installed on a case by case basis where they address specific limiting factors, or may be used in dysfunctional systems where historic floodplain function cannot be achieved (i.e. streams next to roads, residences, etc.). We believe that in most situations using riparian fencing alone, or combined with planting and/or bioengineering techniques using native materials, we can achieve better results than using traditional “hard” structure techniques such as rip rap, weirs, rock jetties, or barbs.
- We have used a wide variety of bioengineering and planting techniques since the program was initiated in 1984. For example, local and distant plant stocks, native and exotic plants, cuttings and rooted stocks, and use of root hormones have all been tried. Bioengineering and riparian planting success is largely dependent on donor plant selection and/or brood source, and our experience has shown that local indigenous stocks are most likely to succeed. Success is also increased when individual plants are placed in areas where these species occur naturally, therefore site selection is critical.
- As originally designed, riparian fences were thought to be relatively “maintenance free”. Our experience has shown that a successful program is dependent on a project design that includes a consideration of geomorphology and hydraulics of the stream (i.e. place the fence outside of the flood prone area), and a modest yet continuous level of maintenance. Both are vital to the overall success of the program. When making selections of individual projects, willingness of a landowner to fence greater distances away from flood prone areas weighs heavily in our decision of whether or not to implement a project.

Reporting: Results such as those listed above are reported regularly in quarterly, annual, or special reports and distributed to respective ODFW districts, BPA and other interested parties.

e. Methods.

Section 7e. METHODS: The overall program objective is to increase natural production of wild anadromous salmonids by removing the causes of habitat degradation. Reducing sediment loading, improving water quality and quantity, and improving riparian habitat and instream habitat diversity are expected benefits.

Scope: This project addresses habitat degradation in the Grande Ronde subbasin by: 1) implementing new projects through lease agreements with private landowners on selected streams; 2) maintaining project investments over the terms of the lease; 3) monitoring and evaluating the projects and applying adaptive management; 4) coordinating with other agencies, Tribes, organizations and school/youth groups.

Underlying Assumptions: Overgrazing of riparian areas, timber harvest, road construction along streams and other management practices have led to habitat degradation in the basin. Encouraging recovery of riparian vegetation, improving streambank stability and instream habitat diversity will result in an overall increase in water quality and quantity within the Grande Ronde subbasin. By addressing the freshwater stages of the salmonid life cycle and allowing natural processes to occur, improvements in habitat will result in an increase in salmonid carrying capacity within the basin.

Tasks: (*Note: Specific Tasks in parenthesis refer to those listed in Section 4*) In 1998 and beyond we will continue working cooperatively with landowners to protect riparian and instream habitat on selected streams. This will be accomplished through lease or cooperative agreements that restrict human use (i.e. eliminates grazing, road construction, timber harvest, mining, burning, etc.). We expect to sign agreements with 2-3 landowners annually (*See Tasks 1a-1c*). Fish access to preferred habitat will be improved or modified by removing fish passage barriers where applicable (*See Task 2a*).

Control of livestock utilization within riparian areas will be done through: a) fencing riparian areas to exclude grazing and b) developing off-site water sources to encourage livestock to focus their attention away from riparian areas (*See Tasks 2a-2b*).

Degraded riparian areas will be restored as needed by: a) planting native shrubs and trees; b) seeding with grasses and legumes; and c) controlling noxious weeds (*See Tasks 3b-3c*).

Streambank stability and instream habitat diversity will be improved on a site-specific basis by: a) using bioengineering techniques to stabilize streambanks and provide stream channel/grade control; b) installing large wood, boulders or other native materials in stream channels to increase habitat diversity; c) installing other site-specific instream structures needed to address factors limiting salmonid production or floodplain function (*See Task 2c*).

In order to protect program investments, inspections and maintenance (*See Tasks 3a-3e*) will be completed at least once annually on the following: a) 96.1 miles of riparian enclosure fences that protect 54.7 miles of streams and 1276 acres of riparian and

instream habitat; b) 24 off-site spring developments; c) revegetate areas with native species where necessary to aid in bank stabilization and improve understory and overstory components of riparian plant communities; d) control noxious weeds in coordination with county weed agencies, e) inspect and maintain instream structures (*Note: It may be determined that some instream structures should not be maintained, or may be removed if they are not achieving desired results*); f) coordinate frequently with individual landowners and other stakeholders. Additional maintenance may occur following catastrophic natural events (e.g. floods, wind storms, ice flows etc.).

Monitoring and Evaluation: There are several ways in which individual projects are being monitored and data evaluated (*See Tasks 4a-4e*). The Grande Ronde Fish Habitat Enhancement Project has been monitoring the following:

- **Stream Temperatures:** Ten permanent thermographs have been installed at the upper and lower ends of selected project streams to measure long term changes in stream temperatures. These thermographs record water, and in some cases air temperatures on an hourly basis, 24 hours/day, year around. Other thermographs have been deployed in specific stream reaches to record summer temperatures only.
- **Habitat Monitoring Transects:** These transect studies measure specific physical and biological characteristics (i.e. channel substrate, channel width, bank height, flow features, ground cover type, stream shading, etc.) in selected study areas. They are designed to measure long term changes in the riparian vegetation and stream channel morphology. One hundred forty habitat monitoring transects on four streams have been established within the project area. Following establishment of these transects and the initial data collection, measurements have been retaken at 3 to 5 year intervals.
- **Photopoints:** Due to the size and complexity of the program, the easiest and least costly way to monitor results from individual projects is through photographic documentation. The purpose of these photographs is to show changes in riparian vegetation (such as increased canopy and shading, improved bank stability, etc.), and changes in stream channel morphology (such as narrowing and deepening of the channel). Several photopoints are established on each individual project prior to implementation. Pictures are then retaken from most of these sites on an annual basis. In the Grande Ronde Basin two hundred and seven (207) photopoints have been established on 27 individual projects. “Before/After” photographs and slides are used for presentations and as educational tools, and they are provided to the respective landowners to demonstrate project benefits that have occurred over the years.
- **Other Biological Surveys:** On selected streams--salmon or steelhead spawning ground counts, inventories of nesting birds, fish population estimates, and measurements of growth rates of woody species have been collected.

The results of monitoring efforts have been included in quarterly, annual and other special reports, and are shared with other agencies or interested parties (*See Tasks 4e, 5a-5d, 6b,*

6d). In addition, other information frequently used by this program includes spawning ground counts conducted by other ODFW staff throughout the basin, physical stream habitat surveys, aerial photographs, and research information on salmonid life histories. This information is available from respective ODFW fish districts, research groups, and other agencies or programs.

Expected Results: This project ensures that streams and associated native plant communities are allowed to evolve through natural stages of succession. Important riparian plant communities such as cottonwood and aspen groves are protected from harvest or other human related damage. In general, near term changes (1-5 years) in the affected streams include: increases in sedges, grasses, forbs and shrubs; narrowing and deepening of the stream channel; and improved overall habitat diversity. Long term changes (> 5 years) include: increased shading from development of overstory; reduced summer temperatures; increased summer flows; reduced sedimentation and bank erosion; increased instream and riparian habitat diversity; and reduced winter icing. Eventually, this will lead to a climax plant communities characterized by an overstory of deciduous hardwood and/or conifer species, accompanied with a functional mid and understory plant/shrub community. Increases in large woody debris input and associated pool habitat will occur naturally as late succession plant communities develop.

Improvement of the quality and quantity of spawning and rearing habitat for spring/summer chinook, summer steelhead and resident fishes such as bulltrout and redband trout will result from this passive regeneration approach (NMFS, 1997), and increases in natural production should occur. We believe this project will also provide multiple wildlife benefits as well, since approximately 75-80% of all wildlife species utilize riparian habitats for at least some portion of their life cycle. There are many benefits to participating landowners as well (i.e. reduced soil loss, improved water quality, better pasture management), and feedback from landowners on existing projects indicate that the majority have recognized the improvements and are willing to continue maintenance beyond the terms of the leases.

Factors that may limit success of this project include catastrophic natural events (i.e. floods, fires), changes in upslope management practices or changes in land use laws, and continued mainstem passage problems. However, regardless of the outcome of targeted ESA species, we expect that project outcomes will be generally beneficial to all other stream and riparian dependent native species.

f. Facilities and equipment.

Section 7f. Facilities & Equipment: Grande Ronde Fish Habitat Enhancement project personnel are stationed at the ODFW Northeast Region office in La Grande, Oregon. Facilities include an office and conference room, office equipment (phones, fax, copiers, desktop and laptop computers, internet access, slide projector, etc.), and spacious storage areas (covered & uncovered) for materials and equipment. The Region office also has wood and metal shops accessible to this project.

Three vehicles (pick-ups) are leased by this project from the state motor pool. Vehicles or heavy equipment owned by this BPA/Fish Habitat project includes: a 4-wheel drive tractor equipped with a front end loader, backhoe attachment and post driver; two utility trailers; one ATV trailer; two 6-wheel drive and two 2-wheel drive ATV's. Other vehicles or equipment such as dump trucks, backhoes, and forklifts are often available from the ODFW Region on relatively short notice.

Field equipment owned field by this BPA/Fish Habitat project includes: specialized fence construction tools (wire stretchers, spoolers, chainsaws, etc.); instream work tools (rock drills, hydraulic cable cutters); planting augers; pick-up racks and tool boxes; cameras; survey equipment (autolevel, rod, tapes, compasses, vests); and ten permanent thermographs.

g. References.

Section 7g. REFERENCES:

Anderson, J.W., and others. 1992. Upper Grande Ronde River Anadromous Fish Habitat Protection, Restoration, and Monitoring Plan. USFS, PNWFRS, ODFW, CRITF, CTUIR, NPT, OSU.

Bauer, S.B., and T.A. Burton. 1993. Monitoring Protocols to Evaluate Water Quality Effects of Grazing Management on Western Rangeland Streams. US EPA.

Beschta, R. L., Platts, W.S., and B. Kaufman. 1991. Field Review of Fish Habitat Improvement Projects in the Grande Ronde and John Day River Basins of Eastern Oregon.

CBFWA. 1990. Integrated System Plan for Salmon and Steelhead Production in the Columbia River Basin.

Chaney, E., W. Elmore, and W.S. Platts. 1993. Managing Change: Livestock Grazing on Western Riparian Areas, US Environmental Protection Agency, 45 pp.

CTUIR. 1983. Summary Report: Salmon and Steelhead Habitat Improvement Initiatives--John Day, Umatilla, Grande Ronde and Imnaha Drainages.

CTUIR. 1995. Confederated Tribes of the Umatilla Indian Reservation - Columbia Basin Salmon Policy.

Henjum, M.G., J.R. Karr, D.L. Bottom, D.A. Perry, J.C. Bednarz, S.G. Wright, S.A. Beckwitt and E. Beckwitt. 1994. Interim Protection for Late-Successional Forest, Fisheries, and Watersheds: National Forests East of the Cascade Crest, Oregon, and Washington. Besthesdda, The Wildlife Society.

Huntington, Charles W. 1993. Stream and Riparian Conditions in the Grande Ronde Basin: A report to the Grande Ronde Model Watershed Board, Clearwater Biostudies, Inc.

Independent Scientific Group. 1996. Return to the River: Restoration of Salmonid Fishes in the Columbia River Ecosystem.

Kauffman, J.B. and W.C. Krueger. 1984. Livestock impacts on riparian ecosystems and streamside management implications - a review. *Journal of Range Management* 37: 430-438.

Lichatowich, J.A. and L.E. Mobrand. 1995. Analysis of chinook salmon in the Columbia River from an ecosystem perspective. *Mobrand Biometrics*.

Maser, C., R.F. Terrent, J.M. Trappe and J.F. Franklin (eds.). 1988. From the Forest to the Sea: A Story of Fallen Trees., USDA Forest Service, PNRS, Portland OR. 153 pp.

McGowan, V.R.. 1997. McCoy Creek Electroshocking Surveys. Grande Ronde Basin Fish Habitat Enhancement Project, BPA, Oregon Department of Fish and Wildlife, La Grande, OR.

McIntosh, B.A., J.R. Sedell, J.E. Smith, R.C. Wismar, S.E. Clarke, G.H. Reeves, and L.A. Brown. 1994. Management history of eastside ecosystems: Changes in Fish Habitat over 50 years, 1935-1992. General Technical Report, PNW-GTR-321, Report. USDA, Forest Service, Pacific Northwest Research Station, Portland, OR.

Meehan, W. R., editor. 1991. Influences of Forest and Rangeland Management on Salmonids and their Habitats. American Fisheries Society, Special Publication 19. Bethesda, Maryland.

Mobrand, L. and L. Lestelle. 1997. Application of the Ecosystem Diagnosis and Treatment Method to the Grande Ronde Model Watershed Project. BPA Task Order Number 95AT61148, P.O. Box 3621, Portland, OR.

NMFS. 1997. Snake River Salmon Recovery Plan. August 1997 Draft.

Noll, W., Williams, S., and R. Boyce. 1988. Grande Ronde River Basin Fish Habitat Improvement Implementation Plan. Oregon Department of Fish and Wildlife.

NPPC. 1994. Columbia River Basin Fish and Wildlife Plan.

Platts, 1990. Managing Fisheries and Wildlife on Rangelands Grazed by Livestock. Nevada Department of Fish and Wildlife.

USFS. 1994. Upper Grande Ronde Conservation Strategy for Endangered Snake River Spring Chinook Salmon. Environmental Assessment, Wallowa -Whitman National Forest, La Grande Ranger District, La Grande, OR.

Wallowa County-Nez Perce Tribe. 1993. Salmon Recovery Plan.

Wissmar, R.C., J.E. Smith, B.A. McIntosh, H.W. Li, G.H. Reeves and J.R. Sedell. 1994. A history of resource use and disturbance in riverine basins of eastern Oregon and Washington (early 1800s-1900s). Northwest Science 68: 1-35.

Section 8. Relationships to other projects

Section 8. Relationships to other Projects: In Eastern Oregon the Grande Ronde Habitat Enhancement project (8402500), the Mainstem, Middle Fork, and North Fork John Day River project (8402100), the Umatilla Habitat Improvement project (871002), the Fifteen Mile Creek Habitat Improvement project (9304000), and the Trout Creek project (9404200) are closely tied. These projects use similar methods, focusing on watershed health and riparian and instream habitat enhancement within anadromous fish streams as a means of protecting and improving the quantity and quality of salmonid spawning and rearing habitat. The Grande Ronde, John Day, and Umatilla habitat projects communicate on a frequent basis, and regularly share equipment, funding, technology and personnel. For example, individual projects in the Camas Creek drainage (North Fork John Day subbasin) are funded under the John Day program, but implemented and maintained by Grande Ronde project personnel due to their geographic location. Grande Ronde personnel assisted the Umatilla project in 1996 with bioengineered treatments, receiving valuable training on use of “soft” structural applications in the process.

Specifically within the Grande Ronde River Basin there are several FWP funded projects that complement this project. Examples include:

- The Grande Ronde Subbasin Watershed Restoration project (9608300) sponsored by the Confederated Tribes of the Umatilla Indian Reservation has been working cooperatively with ODFW, other agencies and a private landowner on the McCoy Meadows Restoration Project in which funds (from BPA, ODEQ, and EPA) and personnel are being shared. Beginning in 1988 this project has been under a 15 year riparian fencing and lease agreement through the Grande Ronde Habitat Enhancement project. Since then, an interagency group, led by the CTUIR has taken the project a step further in the restoration process. In phase I, completed in 1997, a channelized reach of stream was relocated into one of its historic meanders to improve overall floodplain function, and riparian fencing was relocated several hundred feet away from the stream to protect the entire wetland and much of the surrounding uplands from livestock. Additional phases in 1999 will include removing an existing culvert/bridge that constricts stream flow, relocating additional

portions of McCoy Creek into historic meanders in the lower reaches, and doing similar work in nearby Meadow Creek where an abandoned railroad grade presently constricts flows.

- Individual projects selected for possible implementation by the Grande Ronde Habitat Enhancement project are prioritized (in part) based on the planning documents listed in Section 1 of this proposal--some of these have been watershed and fisheries analyses identifying specific limiting factors within individual subbasins, and were produced through funding from the Grande Ronde Model Watershed Program (9402700). Individual projects of the Grande Ronde Fish Enhancement project are also reviewed/rated by GRMWP Technical Review group, and the implementation portion of three of these projects (on the Grande Ronde River, Beaver Creek and Hurricane Creek) was funded through the GRMWP. The GRMWP fulfills the larger role of overall watershed assessment, relates watershed issues to local cultures and economies, and funds more general watershed/fisheries projects. The Grande Ronde habitat project is able to more specifically address instream fish and riparian habitat issues, and because of ODFW's well established long term relationships with individual landowners we are often able to work much closer with landowners who shy away from multi-agency groups or "big government". We are also able ensure long term commitments are met, more thorough monitoring of selected projects is completed, and we are more focused in our program on protecting the highest priority streams.
- The Spring Chinook Salmon Early Life History project (9202604) helps identify critical habitat locations and specific spawning, rearing, and overwinter requirements of spring chinook salmon. The results of that work aid this project by providing data that is useful in prescribing treatments in a given stream reach, and connects research efforts to on the ground projects. Equipment is occasionally shared between these projects as well.
- The Meadow Creek Instream Structure and Riparian Evaluation project (9607700) sponsored by the USFS ties in closely with three individual projects that ODFW has implemented further downstream. Improvements in instream and riparian habitat gained in the national forest reaches should improve overall water quality and quantity, and connect these to protected areas of habitat on ODFW projects. Knowledge gained from both projects, such as stream thermograph data, is regularly exchanged.
- The Oregon Screens project (9306600) sponsored by ODFW installs fish screens to protect migrating salmonids within the Grande Ronde and other basins. This project occasionally shares personnel and equipment with the fish screens project, and information is frequently exchanged on specific areas of where to focus work, and locations of willing landowners.

On a broader scale, there are several agencies or programs that this project collaborates with. In addition to the projects listed above, the USDA Forest Service, Wallowa-Whitman National Forest, along with the Bureau of Land Management, Baker District have many non-FWP funded habitat policies and programs (such as PACFISH) on federal lands within the basin.

The ODFW Fish Restoration and Enhancement Program has funded several riparian and instream enhancement cooperative projects in the region, focusing primarily on resident native fishes. The R&E program utilizes many of the techniques (i.e. leases, cooperative agreements, fence specifications, etc.) we have developed over the years from this project, and occasionally shares facilities and equipment to accomplish similar goals.

The Army Corps of Engineers “Modification of Corps Projects for the Benefit of the Environment” program under Section 1135 Authority is working on projects within the basin to restore or improve riparian and floodplain functions for the benefit of fish and wildlife. Personnel from this project have been actively involved with the design and implementation of these Corps projects. The Environmental Protection Agency and Oregon Department of Environmental Quality also contribute funding from various sources that address state or federal water quality standards in this basin. In addition, the COE and the Oregon Division of State Lands (ODSL) enforce the fill/removal laws in the waters of the state; project personnel must be knowledgeable of these regulations and fill out necessary permits to complete projects involving instream work.

Other more generally related programs or agencies include: 1) the Columbia River Fisheries Development Program (Mitchell Act) which provides funding to the Oregon Screens Program to protect upstream and downstream migrants; 2) Ongoing interagency cooperation occurs between this project and local watershed councils, Soil & Water Conservation Districts, the Natural Resource Conservation Service, Oregon Department of Forestry, Oregon Department of Transportation, and other organizations or groups.

Section 9. Key personnel

Section 9. Key Personnel:

SUMMARY OF KEY PERSONNEL:

<u>NAME</u>	<u>TITLE</u>	<u>FTE/Hours</u>	<u>PROGRAM EXPERIENCE</u>
Unfilled	Project Leader	2 months	
Vance R. McGowan	Fisheries Habitat Biologist	Permanent, Full time	8 years
Russell M. Powell	Fish Habitat Technician	Permanent, Full time	5.5 years
Scott P. Stennfeld	Experimental Biology Aid	Seasonal, 10 months	5.5 years
Dirk W. Weaver	Experimental Biology Aid	Seasonal, 4 months	2 years
	Other EBA's (1-3)	Seasonal, 10-14 months	

Vance R. McGowan
605 F Avenue
La Grande, OR 97850
home (503) 963-9008
work (503) 963-2138

EDUCATION

Bachelor of Science in Fisheries, 1980
Humboldt State University, Arcata, CA 95521

PROFESSIONAL EXPERIENCE

1993 to 1998 Fisheries Habitat Biologist, Grande Ronde Basin
Oregon Department of Fish and Wildlife, La Grande, OR 97850

Project Leader for the Grande Ronde Basin Fish Habitat Enhancement Project. Management responsibilities include implementation, monitoring, and maintenance of 27 individual fish habitat projects on private lands in Grande Ronde Basin streams. Specific duties include: working with private landowners to develop and implement fish habitat projects in anadromous fish bearing streams; conducting stream habitat inventories; preparing riparian easements or leases and construction contracts for fish habitat projects; develop biological and physical monitoring and evaluation plans; provide program oversight and direction for collection, analysis and interpretation of data; inspect and assess project maintenance needs; provide technical assistance, make presentations and coordinate with various public agencies, private landowners and tribal agencies; prepare reports on program activities; develop and track program budgeting; and provide supervision of one permanent technician and two to five seasonal personnel.

1990 to 1993 Fish Habitat Technician 2
Oregon Department of Fish and Wildlife, Enterprise, OR 97828

Responsibilities as Fish Habitat Technician 2 were to implement, monitor, and evaluate fish habitat projects in the Grande Ronde River basin. Typical duties included: supervise and conduct the design and layout of instream fish habitat work and riparian fences; conduct biological and physical monitoring of fish habitat projects such as fish population surveys, stream habitat surveys, taking photopoints, collecting riparian and stream habitat transect data, monitor stream temperatures using thermographs; maintaining fish habitat instream structures and riparian fences; preparing reports, data summaries and tracking program expenditures; purchase and maintain equipment and supplies; and supervise one to three seasonal employees.

1986 to 1990 Saltwater Facilities Assistant Manager
Anadromous Inc., Coos Bay, OR 97459

The Coos Bay Saltwater facility had multiple functions including ocean ranching of coho and chinook salmon, raising and harvesting "pansize" coho salmon, and net pen rearing of adult chinook and Atlantic salmon. Duties included: hiring, training, and supervising 8 permanent and 10-

40 part-time employees; scheduling and coordinating program activities such as fish transports, harvests, brood selection, fish grading, releasing smolts, fish processing, and programming the growth of pansize coho in order to continually harvest 10,000 lbs/week; maintaining records of these activities; Other responsibilities included supervising barge releases of tagged smolts, spawning of Atlantic salmon in sea water, keeping records of marine mammal problems, ordering equipment and supplies, preparing budget reports, safety committee member. I became acting site manager in July 1989 -- Additional responsibilities included completing monthly reports such as inventory reports, releases, trap and harvests and submitting these to appropriate agencies (ODFW, NMFS), and supervision of facilities maintenance and security personnel.

1982 to 1986

Fish Culturist

Anadromous Inc., Ft. Klamath, OR 97626

Routine duties consisted of spawning of broodstock, incubation of eggs, loading fish onto transport trucks, feeding fish, building and installing screens, inventorying fish and eggs, vaccinating salmon smolts against *Vibrio* sp., water quality tests, and various underwater jobs requiring SCUBA. I was responsible for running the coded wire tagging program, supervised grading operations, and keeping accurate records of these projects.

1980 to 1982

Fish and Wildlife Aid

California Dept. of Fish and Game, Red Bluff, CA 96080

Field work included: salmon spawning surveys; building and installing fyke traps, seining, and tagging fish to determine outmigration patterns of various fish species; boat, raft, and backpack electrofishing to obtain population estimates of resident fishes; taking scale samples of fish for age and growth analysis; creel census; collecting stomach samples of salmonids, squawfish, and suckers; equipment maintenance and repair. Research and laboratory work involved: calculating growth rates; determining population estimates; reading scales of brown and rainbow trout, steelhead, and suckers; analyze stomach samples, determine fecundity of fish; mapping spawning areas, and report writing.

1979

Hatchery Volunteer Aid

Humboldt State University, Arcata, CA 95521

The hatchery program at Humboldt State University was designed to give students the opportunity to learn the basics of salmonid culture. Work involved feeding fish, weigh samples, tagging and fin clipping fish for experiments, broodstock spawning, egg inventories, and pond cleaning. All work was voluntary, on a part-time basis, while attending school.

SKILLS/INTERESTS:

Certified SCUBA diver, CPR and First Aid, Member American Fisheries Society

RUSS M. POWELL

551 West Bryan Street
Union, Oregon 97883
(541) 562-6287

EDUCATION: Bachelor of Science Degree in Biology, 1991.
Western Oregon University, Monmouth, OR

PROFESSIONAL EXPERIENCE:

- 2/94 to 1/98 **Fish Habitat Technician 2, Oregon Dept. of Fish & Wildlife, La Grande, OR**
Duties: Assist the biologist with aspects of project administration by: organizing and supervising seasonal employees; purchasing field equipment and supplies and completing proper documentation; determining materials needed for projects; and assisting with report writing and budgeting aspects. Implement new projects by: assisting with design, layout and construction of new fences, watergaps and instream work projects; inspecting the work of contractors; and conduct plantings of native species within riparian areas. Assist with project monitoring by: taking photopoint pictures; thermograph maintenance, deployment and data summarization & graphing; collecting habitat transect data; and conducting spawning surveys of summer Steelhead. Maintain project areas and equipment by: inspecting and repairing fences, watergaps, and spring developments; maintaining vehicles and equipment; communicating with landowners frequently to continue ODFW/landowner rapport.
- 12/93 to 2/94 **Experimental Biology Aide, Oregon Dept. of Fish & Wildlife, Portland, OR**
Duties: Ran a permanent hunter check station at Sauvie Island. Checked goose hunters' harvest by recording species, subspecies, sex, and age. Wrote up any game violations and reported such violations to the Oregon State Police for follow-up.
- 9/93 to 12/93 **Wildlife Technician 1, Oregon Dept. of Fish and Wildlife, Heppner, OR**
Duties: Worked independently checking hunters in regulated hunt areas during deer and elk seasons. Flew over the Lower John Day area in a helicopter to conduct fall Big Horn Sheep and Mule Deer counts. I also built a number of guzzler roofs to be installed during winter or spring.
- 7/93 to 9/93 **Wildlife Technician 1, Or. Dept. of Fish & Wildlife, Hines/John Day, OR**
2/93 to 7/93 Duties: Tracked and observed radio-collared Big Horn Sheep in their
natural
3/92 to 7/92 habitat. Prepared reports concerning habitat preferences, territorial patterns, elevation, migratory patterns, and population trends of selected animals. Organized, compiled and input reference library of Sage Grouse literature

into computer data base. Participated in capture and transport of 52 Big Horn Sheep for transplanting. Analyzed and input medical records for transplanted animals. Obtained stool samples from specific animals for analysis and/or detection of disease. Performed routine maintenance tasks in/around buildings and compound.

- 10/92 to 1/93 **Biological Aide, ODFW, Tillamook/Corvallis/Seaside, OR**
7/92 to 10/92 Duties: Conducted salmon spawning surveys on 36 streams. Collected data
2/92 to 3/92 and scale samples of captured adults. Data was collected at 10-day intervals
10/91 to 2/92 in order to determine peak migratory periods of wild and hatchery fish.
Collected aquatic inventory data on selected streams (width, depth, slope, shade, bank stability, etc.). Conducted electroshocking surveys at various locations to observe the number and distribution of fishes. Prepared survey reports and input information on computer. Contacted landowners, explained procedures and obtained permission to enter land.
- 6/91 to 10/91 **Fish & Wildlife Technician 1, ODFW, John Day, OR**
Duties: Constructed and maintained 80 miles of barbed and smooth-wire fence. Surveyed lines so contractors could begin construction of fences. Worked with individual landowners concerning construction specifications and location of projects. Worked with contractors on construction of fish weirs and in-stream rock work.
- 6/89 to 9/89 **Laborer 1, Oregon Dept. of Fish and Wildlife, Pendleton, Oregon**
Duties: Constructed and maintained various types of fences. Fences were constructed to regulate cattle use, define management area boundaries and protect tree seedlings from damage from winter elk and deer herds. Inspected sites to locate noxious plants and sprayed them with gas-powered sprayer towed behind a pick-up truck. Collected pine cones to obtain seeds for planting in areas to increase elk thermal and hiding cover.
- 3/89 to 6/89 **Internship, Hatfield Marine Science Ctr, Newport, OR**
Duties: Taught classes on: marine mammals showing how species adapt and survive through evolution and natural selection; fish anatomy and physiology and showing functions of organs in relation to its natural habitat, and how to determine the age of fish through analysis of scales and otoliths; showed several types of parasites living among fish. Supervised groups and individuals on field trips to tide pools on the Oregon coast.

Scott Paul Stennfeld
201 N Avenue
La Grande, OR 97850
(503) 963-6664

EDUCATION: Eastern Oregon State University
La Grande, OR 97850
Bachelor of Science Degree in Liberal Studies, 1995.

PROFESSIONAL EXPERIENCE:

**3/97 to 1/98 and
7/96 to 12/96** **Experimental Biological Aide**, Oregon Department of Fish and Wildlife
N.E. Region, La Grande, OR. Responsibilities included implementing fish
habitat projects, maintaining existing projects and equipment by
performing or arranging maintenance on field equipment, planting
project areas and performing fence and watgap
on project leases. Monitoring fish habitat projects
transect data and conducting inventories of fish,
aquatic organisms.

6/95 to 8/95 **Experimental Biological Aide**, Oregon department of Fish and Wildlife
Research and Development, La Grande, OR. Primary duties were to
conduct distribution and abundance electro-shocking surveys for residual
summer steelhead and to snorkel select streams identifying and
classifying summer habitat usage by juvenile summer chinook salmon.

12/94 to 3/95 **Experimental Biological Aide**, Oregon Department of Fish
and Wildlife Research and Development, La Grande, OR.
Responsible for operating and maintaining 3 rotary fish traps being
used to study the early life history of summer chinook salmon.
Captured juvenile chinook salmon and juvenile summer steelhead
were sampled according to project protocols.

6/94 to 12/94 **Fisheries Technician / Biological Aide**, 50% of time worked for the
Confederated Tribes of the Umatilla Indian Reservation and 50%
with the Oregon Department of Fish and Wildlife Research and
Development organizations, La Grande, OR. Responsibilities
included operating and maintaining 3 rotary screw traps, gathering
biological data on spring chinook salmon and summer steelhead
juveniles, performing various habitat inventories, distribution &
abundance surveys of residual summer steelhead and spring
chinook spawning ground surveys. Assisted biologists with
spawning adult salmon in hatchery.

**2/94 - 6/94 and
7/93 - 11/97**

Experimental Biological Aide, Oregon Department of Fish and Wildlife Research and Development, La Grande, OR. Responsible for installing, operating and maintaining two rotary screw traps involved in a study focusing on the early life history of spring chinook salmon. Other primary responsibilities included “pit” tagging juvenile spring chinook salmon, electro-shocking for residual summer steelhead and snorkeling assigned stream reaches for abundance and distribution of residual summer steelhead and spring chinook salmon juveniles.

5/93 - 7/93

Fisheries Technician, Pacific Northwest Research Station, Corvallis, OR. My duties were to track adult returning spring chinook salmon using radio telemetry within the Grande Ronde and Imnaha River basins. Using aerial and ground tracking, salmon were tracked and mapped to spawning grounds where micro-habitat typing of holding areas was performed using snorkeling techniques..

7/92 - 10/92

Experimental Biological Aide, Oregon Department of Fish and Wildlife Enterprise, OR. Responsible for aquatic habitat inventories, distribution & abundance surveys of bull trout in selected stream reaches, spring chinook salmon spawning ground surveys, species composition and distribution within irrigation canals and collecting of Red-band trout for genetic analysis.

7/90 - 5/91

Experimental Biological Aide, Oregon Department of Fish and Wildlife Research and Development, La Grande, OR. My primary duties were to perform aquatic stream inventories on assigned stream reaches, conduct summer steelhead angling creel census and assist biologist with different types of biological sampling involving juvenile and adult salmonids.

**6/89 - 11/89,
6/88 - 12/88,
6/87 - 12/87**

Fisheries Technician, Wallowa-Whitman National Forest, La Grande Ranger District, La Grande, OR. Responsible for implementing a multi-year instream fish habitat project located in the summer chinook salmon spawning areas of the Grande Ronde River. Duties included overseeing two riparian rehabilitation projects, completing stream habitat inventories and fire fighting.

Section 10. Information/technology transfer

Section 10. Information/Technology Transfer:

The success of this project depends upon forming cooperative agreements between

private landowners and other entities. Interagency cooperation and education will continue to be a vital component of this project.

The closely tied Grande Ronde, John Day and Umatilla habitat enhancement projects regularly share information, new techniques, and exchange reports and other data. Quarterly, annual and other special reports are distributed to respective ODFW districts and to BPA. Special reports, documents and data summaries (such as stream temperatures, fish or habitat surveys) are distributed to large a number of individuals and agencies including private landowners, ODEQ, ODSL, USFS, BLM, Tribes, the Grande Ronde Model Watershed Program, and local watershed councils. Ongoing cooperation and technology transfer regularly occurs between these groups.

Efforts to educate private landowners and the public include:

- Signing is placed in visible locations at all projects, identifying them as a cooperative habitat restoration efforts between agencies and private landowners.
- News articles specifically on this project are occasionally written in local newspapers.
- Photopoint pictures or slides illustrating benefits of these restoration projects are displayed to the public regularly, such as at county fair exhibits, local school groups, bird clubs, forestry associations, elected officials, and other groups.
- Watershed or riparian restoration workshops are regularly attended by project personnel. For example, project personnel attended the “Bioengineering Workshop” sponsored by the Umatilla Fish Habitat Enhancement project, and many of these techniques later incorporated into on the ground projects.

Methods used in this project (i.e. fence specifications, lease or cooperative agreement text, techniques on placement of large wood, etc.) have been applied on closely related ODFW Fish Restoration & Enhancement projects to benefit resident fishes (rainbow trout and bulltrout). Our methodology has also been utilized by many other agencies or groups. For example, we are frequently asked to give demonstrations on planting techniques or use of stream thermographs. Finally, ODFW region and district offices display several project-related riparian restoration and fisheries brochures that are readily available to the public.